

**SEMICONDUCTOR LASER DEVICE**

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**Abstract**

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**PURPOSE:**To control each laser beam independently, and to prevent noises due to return beams by receiving each monitor beam by separate PD for monitor and severally driving APCs.

**CONSTITUTION:**An LD chip 1 is die-bonded with the low surface section 12 of a stepped Si sub-mount 11, and currents are made to flow through a P-N junction vertically in the LD chip 1, thus emitting laser beams A5a, B5b from the front end face 8 of the LD chip 1 while emitting monitor beams A6a, B6b from a rear end face 9. Monitor beams A6a, B6b are not made to intervene mutually by a protrusion section 15 separately, and are received to PDs A14a, B14b for monitor shaped to stepped boundary surfaces 13 respectively. Monitor beams are converted into separate electric signals by each PD A14a, B14b for monitor in laser beams A5a, B5b, and an optical output is controlled by each APC circuit. A stepped boundary surface 13 is provided with a proper inclination to prevent return beam noises by reflected beams from the PDs for monitor to the rear end face 9 of the LD chip 1 at the same time.

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**(54) SEMICONDUCTOR  
LASER DEVICE**

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